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January 29, 2016 electronic delivery

David Harvey
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RE: DEQ Comments on Area 2 Riverbank Source Control Measures Focused Feasibility Study
Gunderson
4350 NW Front Avenue, Portland Oregon
ECSI # 1155

Dear Dave:

Thank you for submitting the *Area 2 Riverbank Source Control Measures Focused Feasibility Study* for the Gunderson Facility, prepared by Apex and dated September 18, 2015. DEQ reviewed the submittal and, as I am new to the project, I also reviewed associated reports and DEQ responses to them, including:

- *Focused Feasibility Investigation and Preliminary Upland Source Evaluation Gunderson Area 2*, prepared by Squier/Kleinfelder in 2006;
- *Erodible and Riverbank Soil Source Control Evaluation*, prepared by Shaw in 2011; *Supplemental Area 2 Riverbank Source Control Evaluation*, prepared by Ash Creek in 2012; and
- *Riverbank Interim Source Control Measures Report Area 2*, prepared by Apex in 2014.

DEQ developed and shared draft comments with you on December 31, 2015, along with EPA's comments, with the intention of improving reader comprehension of the document in support of an eventual source control decision on all contaminant transport pathways from the site to the river. Following our discussion on January 15, 2016, of the comments and revisions needed, I am providing this finalized version of DEQ's comments for you to act on.

General Comments

1. The submittal does not function well as a stand-alone document intended to confirm effectiveness of interim measures and support selection of final source control measures for the Area 2 bank.

    a. While Section 5 does a reasonable job of demonstrating how select erodible areas have been improved, there is no discussion of the majority of the bankline areas, which are assumed to be reasonably stable, adequately armored or lacking elevated contaminants. Elements of this discussion are present in the *Erodible and Riverbank Soil Source Control Evaluation* and *Supplemental Area 2 Riverbank Source Control Evaluation*, but are not compiled in the focused feasibility study to tell a compelling story.

    b. Bankline data is not presented in a straightforward manner. Rather, the same voluminous data tables from the *Expanded Preliminary Assessment, Willamette Sediment Sampling, Area 2 Riverbank Source Control Evaluation* and *Supplemental Area 2 SCE* are reproduced as Appendix D and the same figures from the Supplemental Area 2 SCE showing exceedance quotients for select contaminants are again presented.

The focused feasibility study presents an opportunity to tell the complete story of the investigation, interim actions, effectiveness and final recommended actions. As presented, however, the story is difficult and time-consuming to follow as it requires referencing several other documents and multi-step reference and computation between text, tables and figures. There are also several typos throughout and the designation of Source Control Areas 1 through 5 within Area 2 is confusing. In order to improve reader comprehension, DEQ recommends developing data summary tables and comprehensive figures presented by riverbank sections (we recommend four comprising the entirety of Area 2), which are supported by photographs, to demonstrate stability, armoring adequacy and relevant data.

2. Data presentation and evaluation are not included in the report for all contaminants that were detected in bank soils in exceedance of screening level values. Typically, DEQ requires that all contaminants found in exceedance of Portland Harbor JSCS Table 3-1 screening level values (or EPA draft preliminary remediation goals for applicable remedial action objectives) and those found elevated in the EPA/LWG identified sediment areas of potential concern offshore from contaminated banks, be retained. In a letter dated March 20, 2013, DEQ provided comments on the riverbank source model criteria presented in the *Supplemental Area 2 Riverbank Source Control Evaluation*, indicating that additional criteria, as described in Section 5.1.2 of the 2005 EPA/DEQ Joint Source Control Strategy, must also be applied to contaminant screening. DEQ's letter accepted the four proposed categories of contaminants of potential concern (eight metals, PCBs, tributyltin and one pesticide) to be carried forward for further evaluation and source control measure selection. In order for DEQ to be able to support the approach of using only select elevated contaminants in making a source control decision for the site:

    a. The focused feasibility study must make a demonstration, using the additional JSCS bank evaluation criteria, that all elevated contaminants (particularly PAHs, phthalates, and dioxins/furans) will be adequately addressed by proposed final source control measures.

    b. Monitoring to demonstrate effectiveness of source control measures must include all contaminants found to be elevated in bank soils, as well as those found elevated in AOPC 19 (aluminum, barium, cadmium, copper, iron, manganese, mercury, silver, zinc, bis(2-ethylhexyl)phthalate, PCBs, PAHs, dioxins/furans, aldrin, delta-HCCH, dieldrin, endrin, DDx, chloroethane).

3. Because geotechnical validation of bank stability has not been pursued, achievement of source control objectives is based on assumptions that existing slopes are stable, armoring is adequate and contaminated soils will not, therefore, erode into the river. Long term monitoring will be necessary to confirm these assumptions, demonstrating both the stability of untreated bank areas and the effectiveness of measures placed. Annual monitoring for five years and at a potentially reduced frequency for another decade is typical. Costs of monitoring and any resultant contingencies needed to achieve source control objectives must be planned for and included in the focused feasibility study evaluations.

4. While the focus of the 2013 Consent Order (LQ-LWG-NWR-13-02) DEQ and Gunderson are pursuing this work under in on source control to prevent migration of contaminants to the river, DEQ is obligated to also address other site risks discovered during the work. These processes can be pursued separately, but DEQ's preference is to pursue resolution of both processes concurrently, which is also likely to be more efficient and cost effective for Gunderson. Therefore, risk screening for this document should be expanded and clearly presented and will be reviewed by DEQ's toxicology staff as to implications beyond source control.

    a. For bankline soil from the top of bank to mean high water, screening for occupational workers and terrestrial ecoreceptors should be completed using DEQ RBCs and EPA SLVs. For both receptor classes, hot spots are applicable and should be considered. In addition, risk to in-water receptors should be evaluated, for any areas with elevated contaminants and erosive conditions, using the most current EPA preliminary remediation goals for RAOs 1 and 9.

b. For bankline soil below mean high water, screening is not necessary, given the assumption that EPA's in-water remedy will address the portion of the bankline below MHW and extending into the river.

5. Reference to various elevations on the bankline (mean high water, ordinary high water, and ordinary low water) and elevation datum systems (NGVD and NAVD) are used throughout the document, which is confusing. As City of Portland datum is also commonly referenced in the Portland Harbor, DEQ understands the difficulty of unifying these references. DEQ requests simplifying the use of multiple references as much as possible and providing a table or figure in the focused feasibility study identifying these various elevation references.

Specific Comments

1. Section 1.1 Purpose and Scope – The paragraph does not include a statement of purpose. Rather a short description of the facility is provided, which is expanded upon in Section 2.1. A better approach would be to explain the intent of the document in following the RI/FS process described in OAR 340-122-0080 through 0085 and Sections 4 and 5 of the *Portland Harbor Joint Source Control Strategy* to meet source control objectives for protection of the Portland Harbor in-water remedy.

2. Section 1.1 Purpose and Scope – While the last few sentences of the paragraph narrow down the focus to Area 2, lineal footage and bank elevation information would more appropriately define the scope. This information could be moved from Section 2.1 to avoid redundancy.

3. Section 1.1 Purpose and Scope – The last sentence refers the reader to Figure 3 for a detailed look at the Area 2 riverbank, but Figure 3 was not included in the submittal.

4. Section 2.1 Facility Description – The text indicates that 2 acres of riverfront land is owned by Equilon. Please indicate (on Figure 3) where this land is and, if source control measures are needed here, discuss Equilon's responsibility.

5. Section 2.5 Previous Investigations – The subsections reference data points collected during the various investigations. Reference to appendices or summary tables where the data is located in the submittal should be provided.

6. Section 2.5 Previous Investigations - Willamette River sediment data are presented in Table 2 of Appendix D, but, except for sandy beach sediment in Section 2.5.2, are not discussed in this section. Additionally, EPA/LWG sediment data from offshore of Area 2 are not discussed, but should be.

7. Section 2.5.1 Preliminary Site Assessment and Section 2.5.3 Launchways Soil Evaluation – These sections indicate that sand blast grit was sampled in 1991 and 2004 and analyzed for concentrations of leachable metals, hydrocarbons, volatile organic compounds and buytl tins. Please provide this data, as well as any available sand blast grit analyses that are more current. Please include total metals concentrations, which should also be discussed in the submittal, particularly with regard to the Launchways.

8. Section 3.0 Results of Riverbank Source Control Evaluation – As discussed in General Comments #2 and #3 above, the conclusions summarized from the SCE and Supplemental SCE Reports lack evaluation of some elevated contaminants, some criteria for evaluating banks presented in the JSCS and an accounting of bank areas assumed to be stable, adequately armored or free of elevated contaminants. This section should be

improved by incorporating these elements and by referring to improved figures and contaminant summary tables as described in General Comment #1, above.

9. Section 4.0 Source Control Objective and Section 6.4 Hot Spot Evaluation – These sections discuss an evaluation of risk to people and terrestrial receptors. As discussed in General Comment #4, above, DEQ disagrees that the bank is devoid of terrestrial habitat simply because the upland portions are used for industrial purposes. Please provide an analysis of risk to terrestrial receptors from the top of bank down to mean high water and also in-water receptors for any areas with both elevated contaminants and erosive conditions.

10. Section 4.2 Source Control Goal – Please add discussion of JSCS Table 3-1 screening level values to this paragraph and Table 1.

11. Section 6.0 Re-Evaluation of Areas Warranting Source Control –

    a. This section assumes that interim source control measures implemented are effective. Actions and observations from on-going maintenance and monitoring could be summarized here as an initial demonstration of effectiveness. While DEQ agrees that the measures are appropriate to address the issues described, long term monitoring, maintenance and any needed contingency measures will be required to demonstrate effectiveness.

    b. While DEQ agrees that both elevated concentrations of contaminants and erosive conditions must be present for risk to the river to occur, the focused feasibility study does not illustrate well where these conditions are present. As noted in General Comment #1 above, figures should be presented showing surface and near-surface sampling locations along the bankline (between top of bank and mean high water) and indicating whether exceedances and/or erosive potential are present.

12. Section 6.1 Completed Source Control Measures – The last paragraph of the section indicates that armoring and bioengineering offer permanent erosion protection and direct contact prevention. This is true, however, only if these measures remain in place and in good condition. As engineering controls, these measures are subject to ongoing inspection and maintenance requirements. An overall maintenance and monitoring plan should be developed and included in the focused feasibility study, as noted in General Comment #3 above.

13. Section 6.2 Source Control Area to be Addressed During the In-Water Remedy –

    a. The position of the bulkhead relative to mean high water is needed. If a portion of the bulkhead is present above mean high water, it should be addressed in the focused feasibility study.

    b. This section should include a discussion of whether the existing and proposed bankline stabilization/source control measures could be an impediment to implementation of the in-water remedy.

14. Section 6.3 Source Control Measures Requiring Evaluation – This section should also include discussion of risk to terrestrial and in-water (where warranted) receptors.

15. Section 6.4 Hot Spot Evaluation – Building on Specific Comment #9, above, please include all contaminants for which elevated concentrations were detected and are not addressed by source control measures in the evaluation and on Table 2.

16. Section 7.0 SCM Evaluation Criteria and Section 8.0 Technology Evaluation and Source Control Alternatives Development – Insufficient information is presented to support the conclusion, as a whole, that long-standing rock armoring of Area 2 slopes is fully effective in preventing the release of known bankline contaminants. If bare soil areas are present in the older rip-rapped areas between mean high water and top of bank, or slopes are overly steep and instable, these areas need to be carried forward into the focused feasibility study remedy evaluation.

17. Section 8.1 Screening of General Approaches – Specifics from "the studies completed as part of the SCE/Supplemental SCE (that) demonstrate that many areas of the riverbank are stable" should be brought into the focused feasibility study to produce improved figures, per General Comment #1, to better illustrate which areas are stable.

18. Section 9.0 Comparative Analysis of SCM Alternatives – Better supporting information is needed for estimating costs. For instance, Section 9.1 refers to a "previous contractor estimate" of $1 million for PCC emplacement, which should be referenced and included in the focused feasibility study.

19. Section 9.2 Source Control Area 5 – Ways 2 Building – The summary table incorrectly states that "permits may be unavailable due to required work below OHWL." Time and costs for obtaining permits should be figured into the evaluation.

20. Section 10.1 Source Control Area 2 – The Launchways – Given the activities associated with barge building and launching, an aggregate containment system will require on-going maintenance and monitoring. Thus, costs for maintenance and monitoring should be included in the focused feasibility study and, if selected, included in the overall maintenance and monitoring plan referenced in General Comment #3 and Specific Comment #12, above.

21. Section 10.2 Source Control Area 5 – Ways 2 Building – Because a gap of two to three years is required for the bioengineering proposed to become effective, and even then it would not fully address the human health risks associated with arsenic, DEQ would not support selection of this alternative as the final remedy.

22. Table 1 Source Control Goal Concentrations –

    a. Please include columns for JSCS Table 3-1 screening level values, EPA PRGs associated with RAOs 1 & 9, and DEQ RBCs for terrestrial receptors.
    b. The PRG and RBC values for tributytin are incorrect and should be 24 mg/kg and 250 mg/kg, respectively.
    c. Depending on the adequacy of the demonstration requested in General Comment #2, above, addition of PAHs, phthalates, dioxin/furans and other elevated contaminants may be necessary.

23. Table 2 Hot Spot Concentrations –
    a. Hot spots are presented for human receptors only. Please include terrestrial ecoreceptors.
    b. The RSL value and resultant hot spot concentration for tributytin are incorrect and should be 25 mg/kg and 250 mg/kg, respectively.

c. Depending on the adequacy of the demonstration requested in General Comment #2, above, and the evaluation element request in Specific Comment # 14, above, addition of PAHs, phthalates, dioxin/furans and other elevated contaminants may be necessary.

24. Figure 4 - The figure is very small and because it contains a lot of similarly named locations, labeling lines and tight topographic lines, it is difficult to read. Please consider improving the figure(s) by separately showing surface vs. subsurface samples and making it large enough to distinguish which samples are located within the top of bank, to mean high water interval vs. those below. As noted in General Comment #1 above, we recommend that Area 2 be divided into four subunits for data presentation purposes.

Thank you for the opportunity to review and comment on the submittal. We look forward to discussing these comments with you soon so that we can arrive at an improved product. Once you have reviewed our draft comments, please let me know your availability to meet in the opening weeks of January 2016.

Sincerely,

L. Alexandra Liverman
Portland Harbor Stormwater Coordinator

Attachment: EPA Review Comments Area 2 Riverbank Source Control Measures Focused Feasibility Study Gunderson Facility

ec: Dan Hafley, DEQ
Chris Breemer, Cascadia
Herb Clough, Apex
Eva DeMaria, EPA
ECSI # 1155